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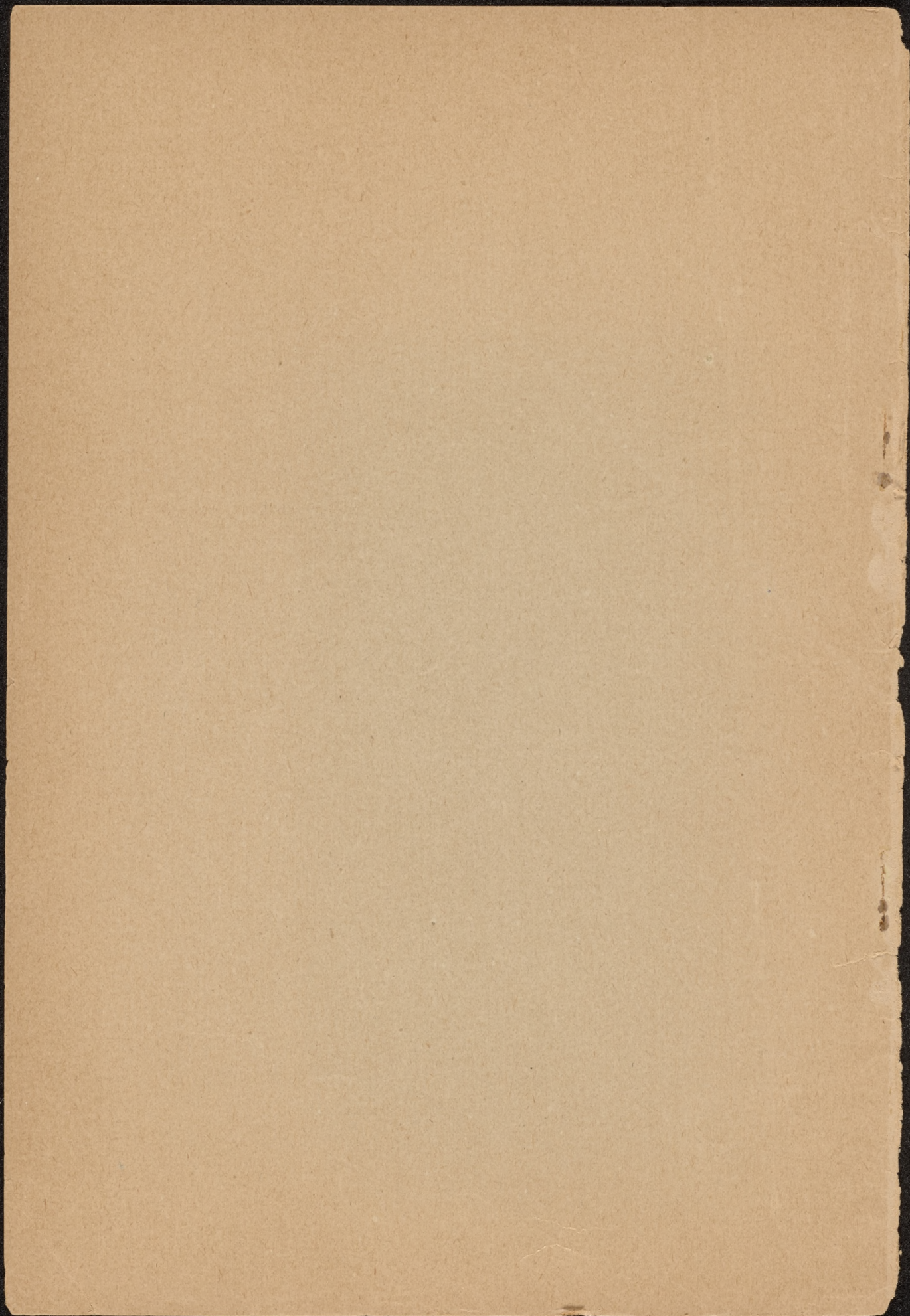
# **Proposed Reclamation**

of the

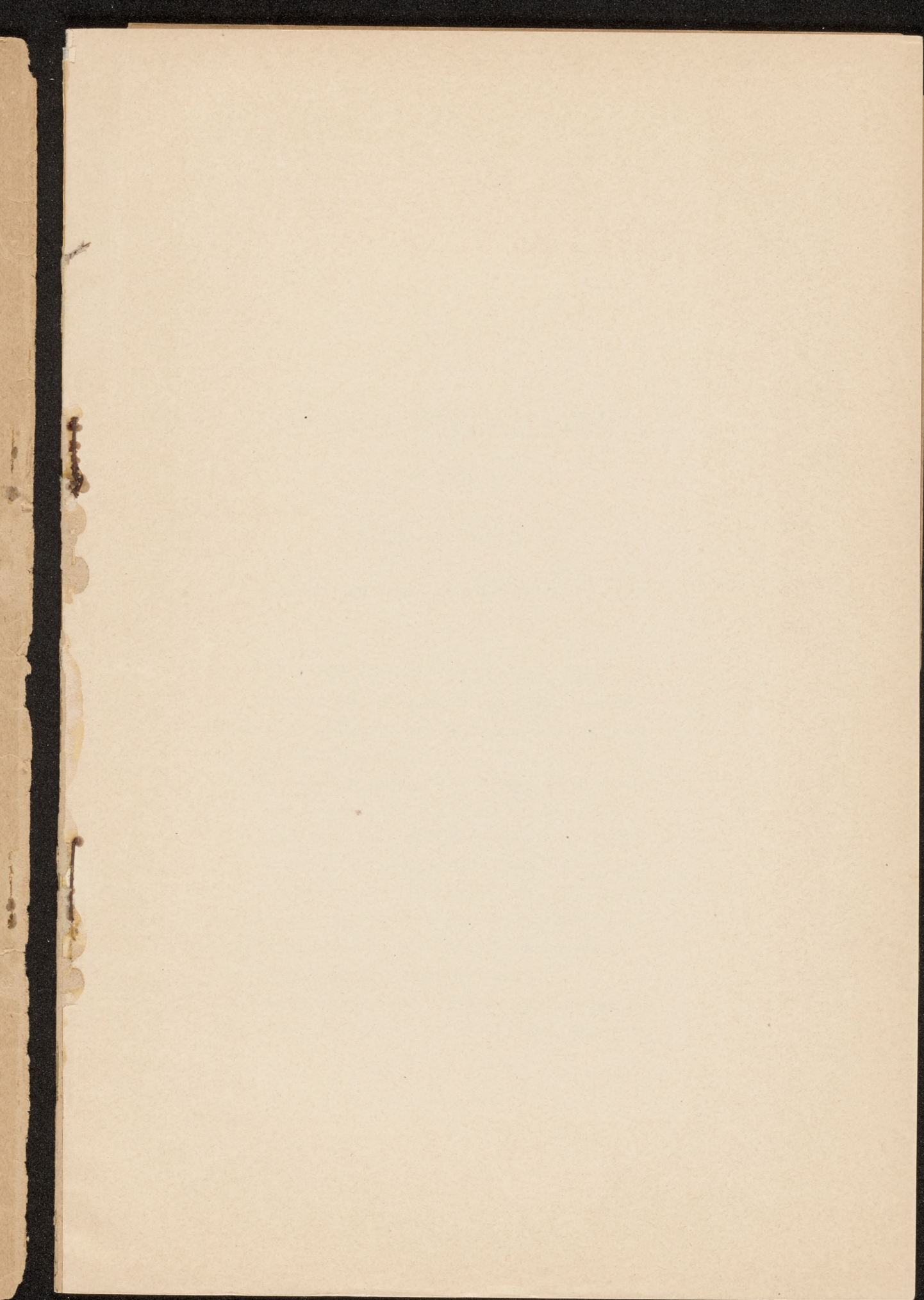
## **"YOLO BASIN"**

**In Yolo and Solano Counties, California.**

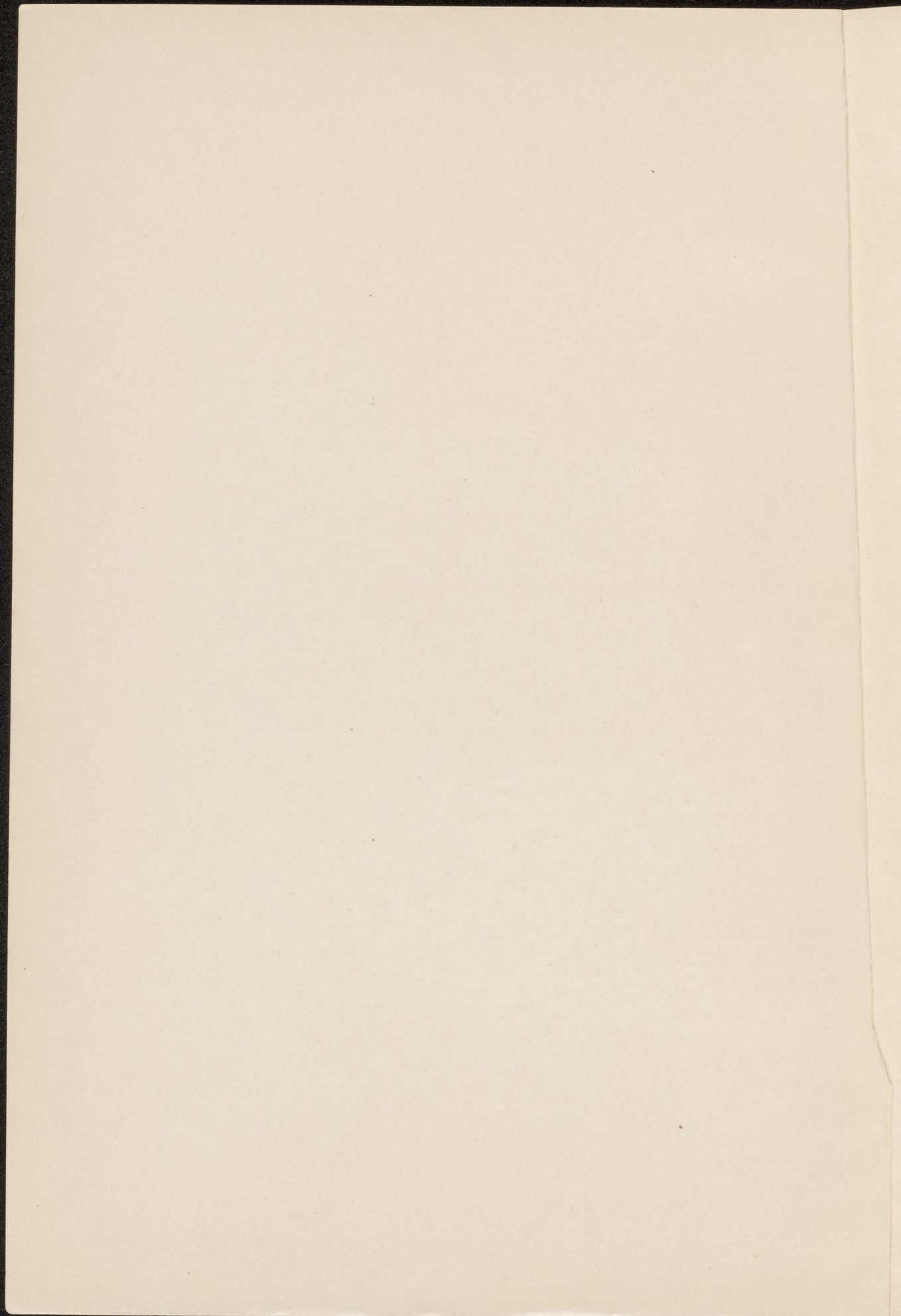














# PROPOSED RECLAMATION

OF THE

## “YOLO BASIN”

In Yolo and Solano Counties, California.

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The Reclamation of the overflowed lands in the Delta of the Sacramento and San Joaquin Rivers in California has made marked progress in the last few years.

The farming public has recognized the fact that better crops can be raised on these lands, year after year, than anywhere else in the State, and the gradual development of the levee-building dredger has so cheapened the process of reclamation that the tracts of land whose local conditions made the cost of reclamation greater, are being gradually taken in hand.

There are left now, unreclaimed, but one or two tracts of really first-class land, hitherto



neglected because of the big capital required to handle them.

The most attractive body, capable of thorough reclamation, remaining, is the lower portion of what is known as the Yolo Basin, lying south of the California Pacific R. R. between Davisville and Sacramento, and running parallel with the Sacramento River, as shown on the map herewith.

The tract that should be first reclaimed contains some 46,580 acres.

To render its reclamation a safe proposition, it will be necessary to devote a strip of land as a Bye-Pass Canal to carry the flood waters, that at present overflow the tract, to the lower Sacramento River.

The volume of the flood water for which waterway has to be provided has been carefully measured to be 130,000 cubic feet per second; and with the fall available, which at flood stage is about eight inches to the mile, will demand a width, if the water be passed between parallel embankments, of half a mile.

The present scheme will require but one of these embankments; but to prevent the possibility of the curtailment of the width of the Canal at any future time, the strip of land must be owned and controlled by the area to be reclaimed.



### Levees Required.

The heavy line on the map herewith shows the levees that will have to be built, altogether thirty-four and one-half miles. It will be for the manifest interest of the Lisbon District and Merritt Island to allow a junction with their levees. Where built on river or slough banks a levee twelve feet high with a crown width of twelve feet and four to one slopes will be sufficient. The levee alongside the Bye-Pass Canal will require to be sixteen feet high with a crown width of twelve feet, an inside slope of three to one and a water front slope, on account of possible wave action, of seven to one.

These levee sections give an area in round numbers of 150,000 and 300,000 cubic yards to the mile, respectively.

An indispensable part of the scheme must be the providing a better outlet for the waters of Cache Slough to the Sacramento River. This work will cost about \$40,000, including the necessary right of way required to set back the levee of the Egbert District; but as other lands will be benefited by this work, and as the State will probably assist it, a sufficient charge for it will probably be \$20,000.



### **Drainage of the Tract.**

The drainage of the tract will require a main drainage canal about sixty feet in width and six feet deep, into which subsidiary drains will be run. The main drainage canal will require the excavation of 70,000 cubic yards per mile.

At the lower end of the canal a pumping plant with a capacity of 150,000 gallons per minute will be required.

### **Formation of District.**

The body of land inside the levees must be formed into a "District" under the swamp land laws of the State.

The District must own absolutely all the land occupied by the levees and canals, and the half-mile strip of land appropriated to the Bye-Pass Canal.

To secure the land to the west line of the proposed canal it may be necessary to acquire some of the land to the west of the canal line that would not be reclaimed by the work proposed. This land, however, will be considerably increased in value by the work done.

### **Purchase of the Land.**

Of the 42,500 acres of land to be reclaimed, 30,300 acres can be acquired at an average cost



of ten dollars per acre. The remaining 12,200 acres are owned by settlers who decline at present to sell, but will contribute their pro-rata of the cost of reclamation.

Should they, however, be willing to sell when faced with the expense of the contemplated work, it will be good policy to buy their land, to get as much river frontage as possible. At the same time there is no danger of any blackmailing opposition to compel purchase, as by the formation of a District the cost of their proportion of the reclamation works becomes an interest-bearing lien upon the land until paid.

### **Dredgers.**

A modern levee building dredger costs \$28,000, or with necessary coal tenders say \$30,000. It has a capacity of 750,000 cubic yards a year; at a cost for running expenses, that is, for labour, fuel, oils and maintenance, of \$18,000 a year, or two and one-half cents per cubic yard of material handled.

There will be twenty and one-half miles of the larger section of levee, averaging 300,000 cubic yards to the mile, and fourteen miles of the smaller section, averaging 150,000 cubic yards to the mile. Twenty-six miles of drainage canal, with an average cross section of sixty by six feet, will average 70,000 cubic yards to the mile; this summarizes:



20½	miles of levee with	300,000 cu. yds. per mile,	6,150,000 cu. yds.	
14	" " " "	150,000 "	"	2,100,000 "
26	" " canal "	70,000 "	"	1,820,000 "
				<hr/> 10,070,000

Say 10,000,000 cubic yards of earth work. The capacity of a new dredger being 750,000 cubic yards a year, to complete the work in two years would require six and two-thirds dredgers. Four dredgers should be built and equipped and owned by the District, and of the total work would accomplish 6,000,000 yards or sixty per cent of the whole. Dredgers can be hired for the remainder of the work, which will cost an additional cent a cubic yard. There would be needed a small tow-boat for moving dredgers and coal barges, and a launch for the engineer. The cost of these would be about \$10,000, and the equipment of a repair shop and store houses would cost about \$2,000 more.

The work would take two years to complete, and the first year's crop would not do more than pay expenses; there must therefore be included three years' interest on the outlay.

### Farm Buildings.

To furnish the necessary farm buildings required for tenants, consisting of dwelling-house, hay-barn and stabling, costs about \$1.50 per acre.



## Capital Required for Reclamation.

The capital required, therefore, for the reclamation will be as follows:

### RIGHT OF WAY—

For 26½ miles of levee and Bye-Pass Canal, altogether 5207 acres at an average of \$10.....\$52,070

For 8 miles of levee along the line of settled land,—140 acres at \$50..... 7,000 \$59,070

DREDGERS, ETC.—Four clam-shell dredgers with hulls 50x100, booms 125 ft. long, and bucket of three cubic yards capacity, with full equipment of tools and electric light and necessary tenders for coal, at \$30,000..... 120,000

TOW-BOAT AND LAUNCHES..... 10,000

BUILDINGS..... 2,000

### DREDGING—

6,000,000 cubic yards of earth with dredgers owned by the District at 2½c per cubic yard.....\$150,000

4,000,000 cubic yards with hired dredgers at 3½c per yard..... 140,000 290,000

PUMPING PLANT—with capacity of 150,000 gals. per minute..... 30,000

CACHE SLOUGH—Part of the cost of improving the entrance of Cache Slough into the Sacramento River..... 20,000

FARM BUILDINGS required for 33,500 acres of land at an average cost of \$1.50 per acre..... 50,250

\$581,320

Add for contingencies, engineering and superintendence, fifteen per cent. .... 87,198

Cost of reclaiming 42,500 acres.....\$668,518  
(or about \$15.73 per acre.)



At completion of the work the District will own a fleet of four dredgers, etc. Two of these will be required for the maintenance of the reclamation, the remaining two will be saleable for \$40,000. The District will also own the strip of land devoted to the Bye-Pass Canal, some 4300 acres, which will have been improved in value, and which, rented as a pasture, will certainly produce a yearly revenue of \$1 per acre.

### Capital Required.

The capital required by the enterprise, therefore, will be:

For the purchase of 30,300 acres of land at \$10 per acre.....	\$303,000
For the Reclamation of 30,300 acres of land at \$15.73 per acre.....	476,619
	<u>\$779,619</u>
Interest on \$779,619 for 3 years at five per cent	116,943
	<u>\$896,562</u>

The 30,300 acres of land, therefore, will cost by the time they are producing, about \$29.59 an acre.

### Maintenance of Levees.

The thorough maintenance of the levee system and the winter pumping of the lands, including management and State and County taxes, costs on Grand Island an average of \$1.50 per acre per year.



### Capability of the Land.

For purposes of comparison the renting conditions on Grand Island afford a convenient parallel. Land on Grand Island is rented to two distinct classes of tenants. One is a grain farmer, usually an American, who delivers thirty-five per cent. of the entire gross crop grown upon his holding, sacked and ready for shipment on the nearest river landing. The other is a truck farmer, usually an Italian, or more frequently a company of Italians, who grows beans and potatoes. This class of renter usually pays a cash rent which ranges, according to the quality or location of the farm, from seven dollars to eight dollars an acre.

Occasionally the truck farmer prefers to pay a share rent, or the land owner prefers to rent in that way, and the ruling rate for this class of produce, which absorbs more labour than grain growing, is twenty-five to twenty-eight per cent. of the crop, delivered for shipment.

The subjoined table of land owners on Grand Island offers comparison for a new enterprise; they are all residents of San Francisco, and they furnish no assistance of any kind to their renters. The resident land owner, furnishing perhaps horses or slight financial assistance, gets much better terms, sometimes double the rents shown.



	Acres owned	No. of farms	Farms rented for cash	Rental per acre	Farms rented on shares	Share paid
David Bixler.....	2030	8	1	\$8	7	{ 35% grain 28% truck
T.H.Williams,Jr.....	1187	6	6	8		
F. H. Johnson.....	1253	5			5	{ 33% grain 25% truck
Ferris & } Williams }	1160	4			4	{ 35% grain 28% truck

Any of these gentlemen may be referred to to confirm the statements above made.

### Value of Reclaimed Land.

The three first above named owners would none of them sell any of their land; the last named hold their land, in farms, for cash at \$75 per acre. The last two sales made by them were 576 acres at \$75 per acre, and 100 acres at \$70 per acre.

There is no large tract of well reclaimed land upon the market; the last tract to be subdivided was Roberts Island in the San Joaquin River. Containing some 30,000 acres of reclaimed land, it was sold in small tracts about ten years ago for one-quarter cash and the balance in one, two and three years. In nearly every case the purchaser had money enough to make his first payment only, and looked to make his deferred payments out of the land. The purchase of every tract was completed, and the final payment made, and not a single tract reverted to the vendors.



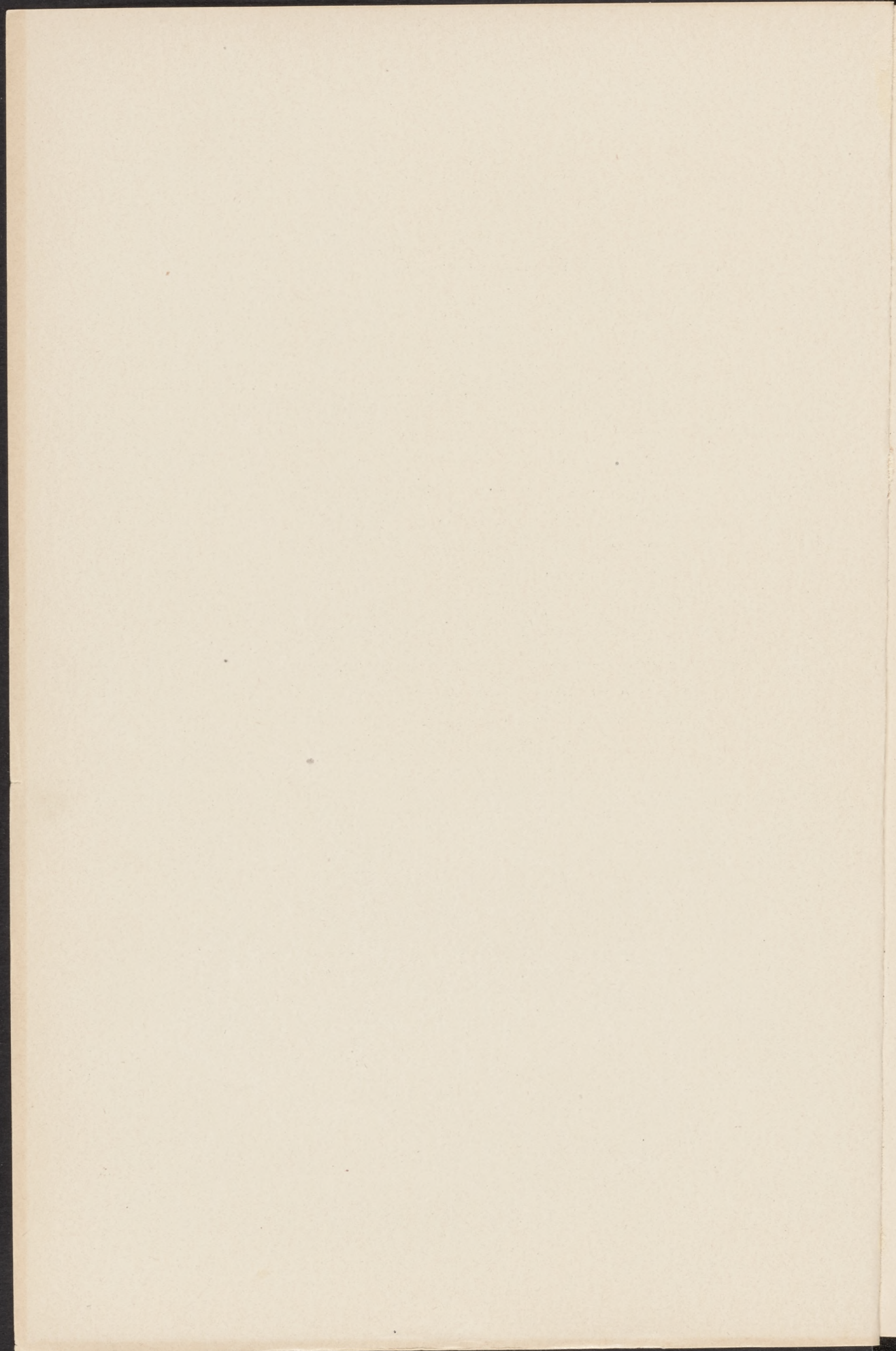
On Ryer Island, adjoining the Yolo Basin Tract, the land rents readily at prices ranging from six dollars to ten dollars per acre, according to the quality and location of the land.

### **Probable Net Revenue.**

The land it is proposed to reclaim will average, all round, of better quality than the land on Grand Island, as it is more generally a sedimentary deposit with less peat land, and there is no question but it will rent readily at an average rental per acre of \$7; and after deducting all expense will net yearly \$5.50 per acre—that is, will net eighteen to twenty per cent. per annum for the money invested.

The ultimate disposition of the property would almost certainly be raising sugar beets; and it is doubtful if any more advantageously situated tract of land, or one in every way better calculated for such a purpose, could be found.







Mr. Jas. D. Schuyler, Consulting Hydraulic Engineer of Los Angeles, made an exhaustive report on this project under date October 1903, and summarizes as follows:

1. The reclamation of swamp and overflowed lands in California, may be profitably and successfully accomplished if the location and natural conditions are favorable, and proper engineering skill is displayed in complying with nature's laws rather than in seeking to combat them. The fact that of the 1,750,000 acres of swamp lands in California but a small proportion, probably less than 10% has been permanently reclaimed by an expenditure aggregating \$17,000,000 up to 1879, and probably exceeding \$20,000,000 to this date, does not necessarily offer any discouragement to intelligent well directed efforts at reclamation in favorable localities, under experienced guidance with modern machinery.

2. The Yolo Basin tract under consideration can be successfully reclaimed at a cost of \$25 to \$30 per acre including purchase of land; dependent upon scale of operations conducted.

3. The Yolo Basin tract averages better in quality of soil, solidity of foundations for levees, in quality of materials for levee building and in nearness of hardpan to the surface, than either Grand or Ryer Islands, adjacent, where the conditions are superior to those found in most of the other islands that have been reclaimed.



4. The tract proposed to be reclaimed has the same advantages of navigable water for the shipment of produce to market, that is enjoyed by the reclaimed islands; and it has the additional advantage of easy accessibility by rail, as it can be reached by a branch of the Southern Pacific in 7 miles from Davisville, or by a line down the river bank, 10 miles long, from Sacramento.

5. The proximity of the Yolo Basin tract to San Francisco, the best market on the coast, and the quickness and cheapness with which produce can be shipped by water, gives the land greater value than any equally good farming land in the interior of the State.

6. The ease with which the land can be irrigated after reclamation, and the abundance of water available without question of water rights ever being involved, enables them to produce two crops with certainty every year.

7. This land is of such a character that it is in demand for market gardens and for general farming with cash rentals of not less than \$8 per acre per annum. Allowing \$1.50 per acre for maintenance of levees, taxes and general expense the net rental or value of \$6.50 per acre will return  $6\frac{1}{2}\%$  on a valuation of \$100 per acre.

8. The land is manifestly adapted to the culture of sugar beets.

9. The State laws governing the formation and control of reclamation districts are extremely



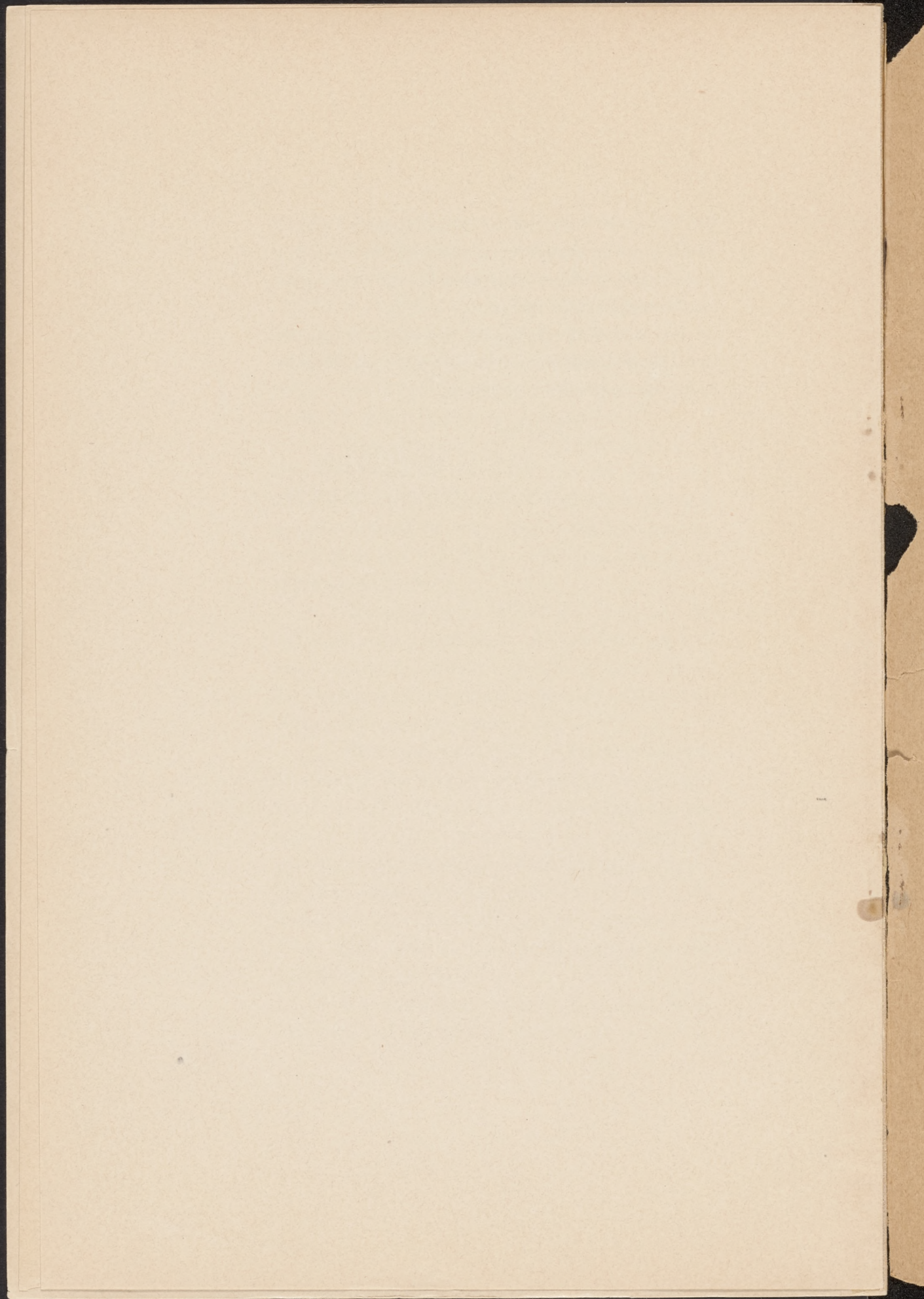
favorable for the organization of such works,  
and it is not in the power of minority land owners  
to obstruct or delay constructions decided upon  
by the majority in interest.

For all of the foregoing reasons I conclude  
that the reclamation works proposed would be a  
profitable and safe investment.

(Signed)

JAS. D. SCHUYLER  
*Consulting Hydraulic Engineer.*







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